

American Society for Testing Materials BULLETIN

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BI MONTHLY

1930 in Retrospect

WITH this number of the BULLETIN we bring again to our readers a review of the activities and accomplishments of the Society during the past year. Not many have either the time or the opportunity to follow closely all the varied activities of the fifty committees of the Society and this "panoramic view" of the year's work makes it possible for everyone to keep in general touch with Society affairs.

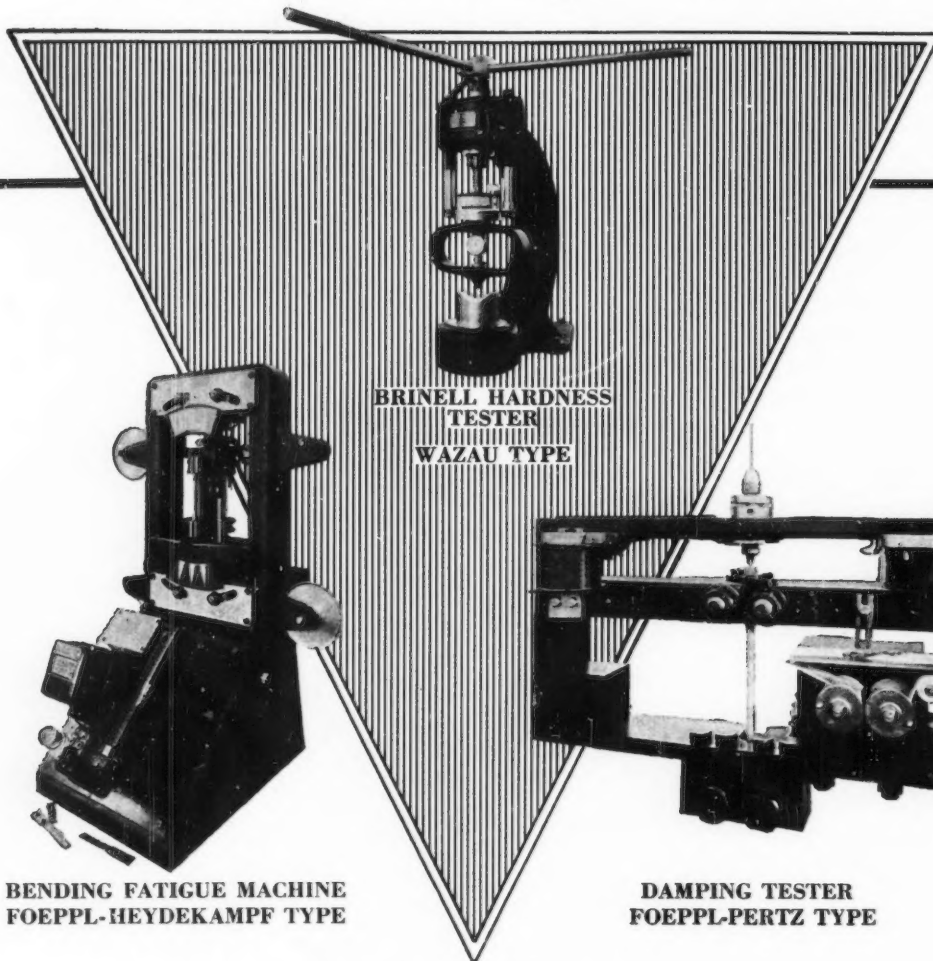
With 1930 such a busy year with many important research and standardization projects undertaken and completed, we look forward to an even busier 1931.

January, 1931



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American Society for Testing Materials



BULLETIN

ENGINEERS' CLUB BUILDING

1315 SPRUCE STREET

PHILADELPHIA, PA.

NUMBER 48

JANUARY 30, 1931

A Review of Society Activities During 1930

REVIEWING the activities of the Society during the past year presents a general prospective of the accomplishments and serves as an incentive for equal or greater accomplishments in the future. The two purposes for which the Society is organized is Research and Standardization—research in and the promotion of knowledge of engineering materials and the standardization of materials specifications and methods of testing. A summary of the active research projects on properties of materials and of the standardization projects relating to methods of testing conducted under Society auspices appeared in the October and December issues of the A.S.T.M. BULLETIN. This summary gave a picture of the work now in progress and should indicate how the work should be extended for the proper development and promotion of these important phases of the Society's work.

The present review is intended as a stock-taking and to serve as an incentive for equal or greater service in subsequent years.

Standardization

Standardization was probably the more prominent in view of the appearance of the Book of A.S.T.M. Standards during the year. The 1930 edition of this triennial publication was issued in two parts, Part I on Metals, containing 179 standard specifications, methods of test, definitions and recommended practices relating to metallic materials, and Part II on Non-Metallic Materials, containing 251 specifications, methods of test, etc., relating to non-metallic materials and products. Included in these publications were not only 45 tentative standards that had been advanced to standard during 1930, but also 55 standards revised in order to have the specifications and methods appearing in the Book of Standards represent the latest thoughts on the subjects covered.

The Book of A.S.T.M. Tentative Standards, an annual publication, contained 155 specifications, methods of test, etc., relating to both metals and non-metallic materials.

As a result of the intensive standardization work, the Society now has 582 standards and tentative standards. The magnitude of this work may be appreciated when compared with the 224 standards in existence ten years ago.

Of outstanding importance in the standardization field during the past year was the organization of the new Committee E-10 on Standards. This committee was organized to promote and to consider general matters of policy concerning the standardization activities of the Society; also to review annually the progress in the Society's standardization work; and to pass upon proposed new tentative standards offered between annual meetings of the Society. On the recommendation of several of the standing committees of the Society, Committee E-10 approved the publication, under the new procedure, of new tentative specifications for high-early-strength portland cement and three methods of testing natural building stone, and the revision of seven tentative standard specifications and methods of testing. The committee has given consideration to a number of proposals for new standardization projects which are being discussed with the standing committees concerned.

Research

With all the emphasis that has been placed upon standardization there has been no diminution in the efforts of the Society to bring out new knowledge on the properties of material through research activities. The correlation and promotion of research activities is under the jurisdiction of Committee E-9, which committee functions substantially in an advisory capacity to the committees of the Society that carry on investigations in materials. In the field of metals, progress may be recorded in the work of the Research Committees on Yield Point of Structural Steel, on Fatigue of Metals and of the Joint A.S.M.E. - A.S.T.M. Research Committee on the Effect of Temperature on the Properties of Metals.

The Yield Point Committee has contributed the results of a comprehensive program dealing mainly with the effects of the speed of movable head on the yield point of structural steel, and in its current report presents considerable data on range in yield point, ratio of yield point to ultimate strength and the effects of location of the test specimen, obtained from some 252 tests on structural steel; and also results of a further study of the relationship between the rate of strain in wedge-gripped specimens and the speed of movable head.

The Research Committee on Fatigue of Metals has been

NEW YORK DISTRICT MEETING

Hotel New Yorker, New York City

March 5, 1931

DETROIT DISTRICT MEETING

February or March, 1931

(Date to be announced later)

SPRING GROUP COMMITTEE MEETING

Hotel William Penn, Pittsburgh, Pa.

March 16-20, 1931

PITTSBURGH REGIONAL MEETING

Hotel William Penn, Pittsburgh, Pa.

March 18, 1931

ANNUAL MEETING

Hotel Stevens, Chicago, Ill.

June 22-26, 1931

concerned with two projects: the first, a preparation of abstracts of important articles and books dealing with the fatigue of metals, the second, a brief statement of the present status of knowledge and current theory in the field of fatigue of metals. Abstracts of important publications, both in this country and abroad, appearing in the technical press during the period from July 1, 1928, to June 30, 1929, was issued during the year, and a second series covering the later literature from July 1, 1929, to June 30, 1930, is now in preparation.

The Research Committee on Effect of Temperature has been reorganized during the year to provide a somewhat more efficient group to handle the large and important problems assigned to it. With its preliminary studies practically completed, the committee is now preparing a research program for which adequate financial support from industry is being asked. The current report contains a second report on comparative high-temperature tension tests of metals at different laboratories and a paper by J. J. Kanter and L. W. Spring on "Some Long-Time Tension Tests of Metals at Elevated Temperatures." The committee plans to issue yearly or bi-yearly additions to the Bibliography on Effect of Temperature, and the first supplement, covering the period 1927 to 1930, has been prepared and is being published by the A.S.M.E.

A new research project was initiated this spring—a study of the causes of embrittlement of hot-dipped galvanized structural steel. This study is being developed under the auspices of Committee A-5 on Corrosion of Iron and Steel with the cooperation of steel manufacturers, galvanizers and fabricators, the public utilities and the producers of zinc.

Perhaps the outstanding research activity in the Society this year in the field of non-metals, was that of Committee C-9 on Concrete and Concrete Aggregates. Studies extending over several years have come to a head this year, and the committee's report at this annual meeting contains a number of valuable reports and papers dealing with its several research projects. Included in the report are such subjects as elastic properties and volume changes of concrete; determination of constituents of fresh concrete; abrasion of aggregates and its relation to concrete-making properties and a study of the abrasion loss of blast-furnace slag. Several technical papers have been inspired by the committee's research program, such as one on Haydite concrete by F. E. Richart and V. P. Jensen, "Tests of Plain and Reinforced Haydite Concrete"; another by R. E. Davis and H. E. Davis entitled "Flow of Concrete Under Sustained Compressive Stress"; and a third by C. H. Scholer and E. R. Dawley on "Volume Change of Concrete."

A frank discussion of the many materials problem confronting the aircraft industry was presented in a Symposium on Aircraft Materials presented at the annual meeting. Seventeen papers comprised the Symposium, each one briefly summarizing the present knowledge on some phase of the properties of the testing of aircraft materials.

The Fifth Edgar Marburg Lecture was delivered by Dr. C. E. Kenneth Mees on the subject "Color and Its Measurement." Dr. Mees presented a very interesting description of the theory of color analysis and synthesis, in which he discussed the physical nature of color involving a consideration of the nature of light and the methods which can be used for measuring it and for its standardization.

The fourth award of the Charles B. Dudley Medal was made to Messrs. J. R. Townsend, C. H. Davis and W. A. Straw, joint authors of a paper entitled "Physical Properties and Methods of Test for Some Sheet Non-Ferrous Metals" which was presented at the 1929 annual meeting of the Society.

The work of the Society is receiving ever increasing recognition, which to some extent has taken the form of increased membership. The number of new members for the year, 396, is practically the same as for the preceding year (400), and greater than for 1928 (356). The membership of the Society on December 31, 1930, was 4417 as compared with

the membership on the corresponding date a year ago of 4365.

An important contribution to the constantly increasing demand for information on alloy steels are the Tables of Data on Chemical Composition, Physical and Mechanical Properties and Corrosion-Resistant Properties of Corrosion-Resistant and Heat-Resistant Alloys prepared by Committee A-10 on Iron-Chromium, Iron-Chromium-Nickel and Related Alloys. These tables are a revision of the corresponding tables appearing in the Symposium on Corrosion-Resistant, Heat-Resistant and Electrical-Resistance Alloys presented before the Society in 1924. Improved methods of recording the mechanical properties at elevated temperatures and the corrosion-resistant properties have been employed. Because of these changes and the generally larger amount of information which the manufacturers were able to provide, it is believed that the tabulation will prove to be of greatly enhanced value to the users of these metals and alloys.

Iron and Steel, General

The Committee on Steel has given careful consideration to the requirements of steel for fusion welding and has prepared a list of A.S.T.M. specifications, covering material that can be welded satisfactorily by the usual fusion processes now in general use. This committee also prepared new Tentative Specifications for Austenitic Manganese Steel Castings.

New Specifications for Open-Hearth Iron Plates of Flange Quality were developed as a result of a request from the Boiler Code Committee of the A.S.M.E.

The Subcommittee on Structural Steel has made some progress in the consideration of new specifications for higher strength structural steel of the so-called medium grade, and also in considering a revision in the tensile strength and other requirements for rivet steel.

The Subcommittee on Structural Steel for Ships has prepared new specifications as a revision and combination of the present Standard Specifications for Structural Steel for Ships and for Rivet Steel for Ships, to be submitted to Committee E-10.

The Subcommittee on Steel Reinforcement Bars recommended the revision of the Standard Specifications for Billet-Steel Concrete Reinforcement Bars, involving the elimination of the present recommendation that the structural grade be used unless otherwise specified, and increasing the allowable tensile range with no decrease in the minimum ductility, and also an increase in the phosphorus limit in acid steels.

Considerable progress has been made during the year by the Subcommittee on Steel Tubing and Pipe in the development of complete specifications for fusion and resistance-welded pipe, hammer-welded pipe, lock-bar pipe, fabricated and riveted pipe of all kinds. This subcommittee also approved revisions in the Standard Specifications for Welded and Seamless Steel Pipe and in the Specifications for Lap-Welded and Seamless Steel and Lap-Welded Iron Boiler Tubes.

The Subcommittee on Steel for Welding has under consideration a request from the A.S.M.E. Boiler Code Committee for a specification covering steel plates of firebox quality suitable for forge welding.

The activities of other subcommittees of the Committee on Steel include the consideration of specifications for sheet steel for freight cars and the development of specifications for material to be used under pressures of 1500 lb. per sq. in. and at temperatures of 1000° F.

Committee A-2 on Wrought Iron has prepared a new definition for "wrought iron" in which any reference to the process by which the iron is made has been omitted. In view of this new definition, the various specifications for wrought-iron products were revised by the elimination of process clauses.

An extensive series of tests carried out to determine the effect of phosphorus in wrought iron was also reported upon. The results of the investigation confirmed the opinion gener-

ally held at present that, with an increase in the phosphorus content, tensile strength increases and ductility decreases.

Committee A-3 on Cast Iron approved the adoption of the Tentative Specifications for Gray-Iron Castings for Valves, Flanges and Pipe Fittings.

During the past year some work has been done on the correlation of test bar and casting. The committee reports the results of two of these investigations, one on "Effect of Section Size on Physical Properties of Cast Iron" and the other on "Comparison of Properties of Different Wall Sections of Cast Iron and Those of the Standard Arbitration Bar."

The committee has been engaged in planning an extensive investigation on impact testing of cast iron. A fund has already been raised among the members of the committee to defray the expenses of these investigations, which will also include the correlation of results on impact and static testing.

Investigations on the fatigue of cast iron have been continued by J. B. Kommers, and were reported in a paper entitled "The Effect of Understressing on Iron and Open-Hearth Iron."

Committee A-5 on Corrosion of Iron and Steel presented a progress report on the several comprehensive corrosion investigations of iron and steel being conducted under its jurisdiction. The atmospheric exposure tests of copper-bearing and non-copper-bearing sheets at Annapolis are still in progress, and all of the failures up to the present time are in the non-copper-bearing light-gage sheets. The galvanized sheets, hardware fastenings and structural shapes exposed to the atmosphere at Pittsburgh, Altoona, State College, Sandy Hook and Key West have been inspected at regular intervals, and the results so far indicate conclusively that the sulfur atmosphere of industrial centers produces soluble zinc compounds which greatly shortens the life of the coating. The hardware specimens are showing failures in a number of groups with hot-dipped galvanized and hot-dipped aluminum coatings giving best results. A new subcommittee has been organized during the year for the investigation of apparent embrittlement of hot-dipped galvanized structural steel.

Studies of corrosion and corrosion-fatigue continue to be of outstanding importance. D. J. McAdam, Jr., reports the continuation of his studies in a paper entitled "The Influence of Stress Range and Cycle Frequency on Corrosion." Evidence regarding the protective zinc coatings of the hot-dipped type on iron and steel when exposed to the atmosphere is reported by C. L. Hippensteel, C. W. Borgmann and F. F. Farnsworth in a paper entitled "Some Observations on the Outdoor Atmospheric Corrosion of Protective Zinc Coatings." C. H. Humes, R. F. Passano and Anson Hayes described another method of applying statistical analysis methods to corrosion data in a paper entitled "A Study of the Error of Averages and Its Application to Corrosion Tests."

Committee A-6 on Magnetic Properties has revised and added to the list of terms, definitions and symbols relating to magnetic testing. Experimental work is in progress looking toward the development of methods for testing at very low inductions with alternating currents and for testing with high magnetizing forces such as are necessary for the cobalt magnet steels. Both of these problems are of considerable commercial importance.

Committee A-8 on Magnetic Analysis has had under way an investigation on the correlation of magnetic properties with toughness as indicated by impact tests. The experimental work is nearing completion and a report may be made within the year.

The detection of segregation of ferrous materials for magnetic analysis using alternating current has been studied by a number of investigators. An alternating current bridge has been developed which tests ferrous materials independently of their cross-sections. This apparatus is described in a paper by W. B. Kouwenhoven and A. C. Seletzky entitled "The Unbalanced Alternating Current Bridge for Magnetic Analysis."

Committee A-7 on Malleable Castings submitted a revision of the Standard Specifications for Malleable Castings, increasing the yield point requirement to 32,500 lb. per sq. in. from the present value of 30,000 lb. per sq. in. This committee is considering the advisability of writing additional specifications for malleable castings having lower tensile strength requirements than 50,000 lb. per sq. in., with suitable requirements for impact tests, machineability and galvanizing properties.

Committee A-9 on Ferro-Alloys has prepared new specifications for ferro-molybdenum, which it expects to present to Committee E-10 on Standards during the coming year. This committee is also considering the preparation of specifications for ferro-tungsten.

Non-Ferrous Metals and Alloys

The activities of Committee B-2 on Non-Ferrous Metals and Alloys have been centered in the investigation on die-cast metals and alloys and on the development of methods of chemical analysis.

The study of die-casting alloys, heretofore handled as a subcommittee activity of Committee B-2, has been assigned to a new standing Committee B-6 on Die-Cast Metals and Alloys. The new organization has prepared preliminary drafts of two specifications, one covering six aluminum-base die-casting alloys and the other covering the preferred zinc-base die-casting alloy.

The most important phase of the committee's experimental work during the past year has been the collection of test specimens from the ten locations after exposure to the respective climatic conditions for one year. Strength, Rockwell hardness, and impact tests have been made in cooperating laboratories and the initial field data are thus on hand to correlate accelerated corrosion tests in the laboratory with long-time outdoor exposure.

The Subcommittee on Chemical Analysis has made a number of analyses of standard samples of zinc-base die-casting alloys in cooperation with the Die-Casting Committee. This subcommittee has also prepared a Proposed Method of Analysis for Silver Solders.

The List of Alloys prepared by Professor William Campbell, Chairman of Committee B-2, originally published in 1922, has been considerably revised and amplified to include data on physical properties of some typical alloy compositions, as well as a number of new alloys.

Committee B-1 on Copper Wire has recommended revisions in the Standard Specifications for Round and Grooved Hard-Drawn Copper Trolley Wire and for Bronze Trolley Wire to include requirements on the design and dimensions of grooved wire of 350,000 circular mils cross-section.

Committee B-3 on Corrosion of Non-Ferrous Metals and Alloys has continued to follow its program of long-time service corrosion tests in the atmosphere and in liquids. The current report gives a complete list of all the materials to be used in the test and a list of the firms and individuals who have contributed to this work. The outdoor test racks have been installed and it is expected that the test specimens which are now being machined and otherwise made ready will be in position next spring.

Committee B-4 on Electrical-Heating, Electrical-Resistance and Electric-Furnace Alloys has developed a new method of test for thermoelectric power of electrical-resistance alloys with respect to copper. Results obtained by the accelerated life test for metallic materials for electrical heating issued last year as a tentative standard are being compared with the life obtained in service with electric toasters. Methods of test are being developed for wrought and cast alloys for use at high temperatures in electric furnaces. Specifications for nickel-chromium wire and iron-copper-nickel wire for electrical heating are in the course of preparation. The committee has prepared a list of identifying colors to be assigned to each of the plain grades of electrical heating wires and

(Continued on page 6)

AMERICAN SOCIETY FOR TESTING MATERIALS

BULLETIN

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Number 48

January 30, 1931

Prospective Meetings

WHILE meetings are not necessarily of prime importance in the work of an organization, they can in a large measure promote the objects for which the association was organized. We are looking forward to an unusually large number of meetings of the Society or of groups of the membership, during the coming spring; each one is intended to develop some phases of the knowledge of materials.

New York District Meeting, March 5.—As announced elsewhere in these pages, the members in the New York District are planning to hold a meeting on the evening of March 5 at which the limitations of the present knowledge of non-ferrous metals, cement and concrete, and electrical materials will be discussed.

Detroit Meeting.—The members in the Detroit District are planning a meeting to be held the latter part of February or early in March. The exact nature of the program has not as yet been developed.

Pittsburgh Regional Meeting March 18.—The Regional Meeting of the Society to be held in Pittsburgh with a technical program on welding should prove of very timely interest and is expected to bring out a wealth of information on a subject that is of prime importance.

Annual Meeting, Chicago, June 22-26.—Previous announcements have been made of the very interesting program that is in prospect for the annual meeting of the Society, with Symposiums on Effect of Temperature on the Properties of Metals, and on Malleable Castings arranged in cooperation with the American Society of Mechanical Engineers and the American Foundrymen's Association, respectively, and a joint session with the Western Society of Engineers on the use of specifications.

In all of these the first consideration has been the development of a worthwhile program. No meeting is being arranged just for the sake of holding a meeting; each should contribute in "promoting the knowledge of engineering materials."

Pittsburgh Regional Meeting

The attention of members is again called to the Regional Meeting which will be held in Pittsburgh on March 18 at the Hotel William Penn. The technical program consists of a symposium on welding with sessions in the morning and afternoon. At the morning session will be presented a general survey of welding processes and a discussion of the quality of metals for welding and modern applications of welding. The afternoon session will be devoted to a discussion of the various methods of inspection and testing of welded products.

The technical program will be followed by an informal dinner. For the evening an interesting demonstration is in prospect arranged by Mr. R. C. Hitchcock, Research Engineer of the Westinghouse Research Laboratories, covering "The Electrical Production and Analysis of Sound and Music." Some typical sounds will be analyzed by the oscilloscope. Violin, oboe and other tones will be synthesized using electrical oscillators. This demonstration should prove of universal interest.

A detailed program will be forwarded to all members of the Society about the middle of February.

1931 Annual Meeting in Chicago

The Local Committee responsible for the arrangements and entertainment in connection with the 1931 annual meeting is looking forward enthusiastically to the meeting of the Society in June. As previously announced, the meeting will be held at The Stevens, June 22 to 26. The committee is under the chairmanship of Mr. H. H. Morgan who will be assisted by 30 other members. Many members of the Society have looked forward to holding an annual meeting in Chicago because of its central location, its importance as an engineering and manufacturing center, and its very excellent facilities for conventions.

An interesting technical program has already been assured as announced in the December issue of the BULLETIN. Judging from the enthusiasm with which the Local Committee on Arrangements is attacking its work the meeting will be one long to be remembered.

Plan early to attend. Wives and families will be welcome and every effort will be made for adequate entertainment.

An Error Corrected

An error in the December BULLETIN has been called to our attention. In the list of Society Research Activities, under the project on Heat Transfer of Refractory Materials, a statement was made classing silicon carbide and fused alumina as heat insulating materials. This is obviously incorrect. It was intended to state that such specialized materials as silicon carbide and fused alumina, whose ability to transfer heat varies so widely from the commonly used materials of furnace construction, require at times a specification as to thermal conductivity.

Death of George S. Webster

As this issue of the BULLETIN goes to press news reaches us of the death on January 23 of Mr. George S. Webster, Past-President of the Society. A more extended notice and account of Mr. Webster's life will be included in the next issue of the BULLETIN.

A.S.T.M. New York District Meeting

As a result of the Executive Committee's efforts to increase the usefulness and influence of the Society through regional and local meetings, a committee has been organized in New York to arrange for a meeting of the A.S.T.M. members in the New York metropolitan district. It is planned to hold the meeting on Thursday evening, March 5, 1931, at 7.30 p. m., in the North Ball Room of the Hotel New Yorker, Thirty-fourth Street and Eighth Avenue. The general subject will be the limitations of our present knowledge of non-ferrous metals, cement and concrete, and electrical materials. Recent and prospective developments will be presented.

It is expected that Mr. J. A. Capp of the Schenectady Works of the General Electric Co., and a Past-President of the Society, will speak on electrical materials. Dr. Paul D. Merica of the International Nickel Co. is expected to present the story of non-ferrous metals. The speaker on cement and concrete has not yet been announced.

Invitations are to be extended to the members of the local sections of the other technical societies to attend the meeting. In order to add to the social side of the occasion, arrangements have been made with the Hotel New Yorker to reserve a section of the Manhattan dining room so that our members and guests can dine together before the meeting.

This will be a trial of this particular method of "promoting knowledge of engineering materials" and making the Society more useful to its members and to industry. Every New York metropolitan member should, therefore, plan to attend the dinner and the meeting so as to make this initial effort a complete success.

It is expected that the experience had with this meeting will determine what permanent arrangements in the way of organization, etc., would be desirable for future activities.

National Western Metal Congress

The Second National Western Metal Congress, sponsored by the American Society for Steel Treating, will be held in San Francisco, Calif., February 16 to 20. The morning sessions of the Congress will be held at the St. Francis Hotel and the afternoon sessions at the Civic Auditorium, at which place an exhibit will be located. An A.S.T.M. session sponsored by the West Coast members of the Society, under the leadership of the Northern California District Committee, will be held on Monday, February 16, at 2 p. m.

The following papers have been secured for presentation at this session:

"High-Strength Steel for a High-Pressure Hydraulic Jack," by G. H. Bragg, Engineer of Maintenance for the Pacific Gas and Electric Co., San Francisco, Calif.

"Metallography of Welding," by P. E. Jeffers, Structural Engineer, Los Angeles, Calif.

"The Causes of Failure of Machine Members in Service," by L. T. Holt, Consulting Physical Metallurgist, Seattle, Wash.

Group Committee Meeting in Pittsburgh

As previously announced, the annual Spring Group Committee Meeting will be held in Pittsburgh at the Hotel William Penn over the dates March 16 to 20. Many of the standing committees have already indicated their intention to participate and arrangements are now being made for the accommodation of these committees and for the preparation of the detailed schedule.

Schedule of Committee Meetings

DATE	COMMITTEE	PLACE
January 29-30	D-2 on Petroleum Products and Lubricants	Baltimore, Md.
February 5-6	C-1 on Cement	New York City
February 16	Joint A.S.T.M. and A.S.M.E. Committee on Effect of Temperature on the Properties of Metals	New York City
February 16-17	B-4 on Electrical-Heating, Electrical-Resistance and Electric-Furnace Alloys	New York City
February 17	B-6 on Die-Cast Metals and Alloys	New York City
February 17	E-4 on Metallography	New York City
February 20	Advisory Committee of Committee B-3 on Corrosion of Non-Ferrous Metals and Alloys	New York City
February 20	E-10 on Standards	Philadelphia
February 27-28	Joint Committee on Standard Specifications for Concrete and Reinforced Concrete	Chicago
February	C-8 on Refractories	Cleveland, Ohio
March 2	E-6 on Papers and Publications	Philadelphia
March 12-13	D-13 on Textile Materials	New York City
March 16-20	GROUP COMMITTEE MEETING	Pittsburgh, Pa.
April 14	Executive Committee	Philadelphia

Proposed Revisions of Standards

There are being distributed with this BULLETIN copies of special interim reports of the Society's Committees A-1 on Steel and C-10 on Hollow Masonry Building Units announcing the intentions of these committees to recommend at the next annual meeting revisions of certain specifications under their jurisdiction. The report of Committee A-1 calls attention to certain revisions in the present Standard Specifications for Billet-Steel Concrete Reinforcement Bars (A 15-30). The report of Committee C-10 proposes a number of revisions in respect to the Standard Specifications and Tests for Hollow Burned-Clay Load-Bearing Wall Tile (C 34-30), for Hollow Burned-Clay Fireproofing, Partition and Furring Tile (C 56-30), for Hollow Burned-Clay Floor Tile (C 57-30) and in the Standard Definitions of Terms Relating to Hollow Tile (C 43-24).

The Executive Committee of the Society has received these special interim reports and has ordered them printed and distributed. The revisions of course have no official status and are presented as information only. It is expected that they will be recommended in due course by the committees in question for action by the Society.

Offers of Papers for 1931 Annual Meeting

Members are reminded of the invitation to submit offers of technical papers for presentation at the 1931 annual meeting. This invitation was extended to all members in a circular sent out December 1. All offers accompanied by a summary and received not later than February 23 will be considered by the Committee on Papers and Publications, but consideration of offers received after that date is entirely contingent upon the condition of the Provisional Program when the offer is received.

Committee E-6 on Papers and Publications will hold a meeting shortly after the date mentioned at which the program for the meeting will be developed.

The A.S.T.M. in 1930

(Continued from page 3)

electrical resistance wires for the label used on the spools of wire. These colors are now in commercial use.

Committee B-5 on Copper and Copper Alloys, Cast and Wrought, has confined its activities to reviewing the present specifications and undertaking such minor revisions from time to time as will keep them up to date and make them more acceptable.

This committee has cooperated with the Non-Ferrous Ingot Metal Institute through a special committee in a review of more than 600 alloys. As a result of this study, the committee has prepared Specifications for Copper-base Alloys in Ingot Form for Sand Castings covering fifteen different compositions which are in effect a revision of the former Tentative Specifications for Brass Ingot Metal, Graded and Ungraded, for Sand Castings. One of the purposes of this study is to promote the use of specifications of copper alloys in ingot form as a basis of price quotations in technical and trade journals, and also with a view toward reducing the number of specified compositions in current use.

Committee B-7 on Light Metals and Alloys, Cast and Wrought, has been quite active through its several subcommittees in the consideration of new specifications, resulting in the preparation of three new specifications: namely, Specifications for Aluminum Alloy (Duralumin) Sheet; Aluminum-Manganese Alloy Sheet; and Magnesium-Base Alloy Castings.

This committee also prepared a complete revision of the Tentative Specifications for Aluminum-Base Sand Casting Alloys in Ingot Form, and for Aluminum-Base Alloy Sand Castings which were submitted to Committee E-10 on Standards and approved as tentative.

Metallography

Committee E-4 on Metallography has completely revised the Tentative Recommended Practice for Thermal Analysis of Steel. The set of standard micrographs for grain size of grain diameters ranging from 0.010 to 0.200 mm. prepared last year has now been incorporated in the Standard Rules Governing the Preparation of Micrographs of Metals and Alloys.

A special subcommittee has been appointed to consider the preparation of standard micrographs of tool steel showing various degrees of spheroidization and contamination by inclusions.

As the result of a recommendation by Committee E-9 on Correlation of Research, Committee E-4 is considering undertaking the correlation of data relating to the crystalline structure of metals as compared with their strength and ductility and other physical properties.

Non-Ferrous Screen Wire Cloth

Committee D-14 on Screen Wire Cloth has presented a very lengthy report of the exposure tests on non-ferrous screen wire cloth which has been in position for over four years. Coincidental with the exposure tests there have also been obtained analyses of the atmosphere for SO_2 content, the results of which are given in the report. Since the exposure tests are now commencing to show failures, it is anticipated that the results will become of increasing importance and interest as time goes on. The tests will be continued and during the coming year such inspections and tests as are called for by the program will be carried out, and additional data of interest made available.

Cement, Clay Products, and Gypsum

Committee C-1 on Cement has been very active during the past year and has approved a revision of the Standard Specifications for Portland Cement involving an increase in the minimum tensile strength requirements for standard mortar briquets. The committee believed these increased require-

ments justifiable on the basis of the general strength level now maintained by the American portland cements. The committee also prepared new specifications for High-Early-Strength Portland Cement which differs from the requirements for the standard portland cement only in requiring a higher strength at early ages and in permitting a greater amount of sulfuric anhydride.

The committee has prepared a set of tolerances concerning new and used cement testing apparatus which had been inserted in the test procedure.

The activities of the Cement Testing Laboratory established by the A.S.T.M. through Committee C-1 at the Bureau of Standards have resulted in the preparation of plans for carrying out the work; in securing and training of an experienced personnel; data on apparatus, test methods and conditions in many laboratories; reports of laboratory investigations; elimination of some variations in test methods; and the improvement of condition of numerous pieces of apparatus and the accumulation of much information for compilation and study.

A subcommittee on strength has given further thought to the development of a new acceptance test for cements and has continued its investigations on plastic-mortar compression specimens. A report on the scope of the tests, some of the data obtained and observations on the results are presented in the current report of Committee C-1.

Information supplied by manufacturers on the characteristics of masonry cements has been assembled by the subcommittee on masonry cements. The wide variation in the character of this type of cement and in the properties reported for it are cogent arguments why there should be a standard for this commodity. The cement committee has recently been reorganized, and studies on masonry and plastic cements, the use of which is growing so rapidly, are now under way looking toward the development of a specification within the year.

Studies on the rate of hydration of cement clinker have been continued by F. O. Anderegg and D. S. Hubbell and reported in a paper entitled "The Rate of Hydration of Cement Clinker. Part II, Portland Cement at Nine and Twelve Months; Part III, Three Minerals Found in Portland Cement." Two other papers of interest in this connection were those by J. R. Dwyer and P. H. Bates, "The Relation Between the Strengths of Cements Developed by Mortar Specimens and Concrete Specimens" and by C. H. Scholer and L. H. Koenitzer, "A Study of Fourteen Brands of Standard Portland Cements and Four Early-Strength Cements."

Committee C-11 on Gypsum has just completed one of its most active years. The committee developed new Specifications for Gypsum Sheathing Board which were issued as tentative and approved the advancement to standard of the Tentative Specifications for Keene's Cement and Calcined Gypsum for Dental Plasters. Revisions were also made in the Methods of Testing Gypsum and Gypsum Products and in several specifications for gypsum and gypsum plasters.

Subcommittee I on Gypsum for Various Uses, in addition to continuing its work on the uses of gypsum and anhydrite as a retarder for portland cement, is endeavoring to correlate the work being done by different investigators throughout the world on gypsum and anhydrite.

The standard method of determining normal consistency of neat calcined gypsum is by means of the modified Vicat apparatus. Subcommittee II on Gypsum Plasters is endeavoring to apply this instrument to wood-fiber plaster and ready sanded plaster by increasing the weight of the plunger. From the results of tests so far conducted by different investigators, it is felt that the modified Vicat apparatus has possibilities in determining standard consistency of sanded plasters, but the results of tests on wood-fiber plasters are inconsistent and there is doubt as to the suitability of this instrument for this product.

Investigations are also being carried on to determine if the use of a positive accelerator of constant composition used without sand in the determination of time of set of gypsum neat plaster is to be preferred to the present standard method.

The committee also reported the results of a comprehensive investigation of gypsum-fiber concrete undertaken to obtain information and data on which building code requirements might be based.

Drain Tile, Hollow Tile, Brick and Refractories

Committee C-6 on Drain Tile, in its current report, presents brief abstracts of the following research projects: Durability of Concrete Drain Tile in Alkali and in Peat Soils, being conducted at the U. S. Bureau of Public Roads; Durability of Concrete in Alkaline Soils and Waters, started by the Portland Cement Association in 1921; and Loads upon Pipe in Wide Ditches, a cooperative study undertaken by the Iowa Engineering Experiment Station and the Clay Products Association.

On the recommendation of Committee C-10 on Hollow Masonry Building Units, revisions in the Standard and Tentative Standard Specifications and Tests for Hollow Tile have been adopted. These revisions include one pertaining to the absorption requirements which provides for a lower limit (5 per cent) in addition to the previously adopted upper limit for absorption. This change was suggested by the results of fire tests of hollow tile walls in which it was found that units of extremely low absorption were in general less resistant than those of more moderate absorption. The effect will be to increase the fire resistance of masonry composed of units meeting the requirements of the standards.

In the Standard Specifications and Tests for Hollow Burned-Clay Load-Bearing Wall Tile the tolerance on the weights of units was increased. This change in the weight requirements permits the use of heavier tiles, the chief purpose being to bring the requirement in line with the code requirements of several cities in which the shell thickness is specified.

The Specifications and Tests for Fireproofing, Partition and Furring Tile were advanced to standard after deleting all requirements pertaining to the strength of units. Because of many different sizes and designs of these types of product it was not found feasible to devise a strength requirement that would not work an undue hardship on certain widely used and satisfactory units. Since, for fireproofing partition and furring tile, strength is not an important consideration the deletion of the strength requirements is not expected to affect the serviceability of the tiles.

The committee has now voted to recommend two other general revisions of the existing standards under its jurisdiction at the next annual meeting of the Society. The first of these revisions consists in the deletion of all portions of the standards pertaining to fire resistance. The second revision deals with the substitution of the words "structural clay tile" for "hollow-burned clay tile."

The new Subcommittee on Concrete Units submitted a proposed specification for concrete masonry units for the consideration of Committee C-10. After some revisions the proposed specification is now before the committee and it is expected that the proposed specification will be submitted to the Society for adoption as tentative standard at the next annual meeting.

Committee C-3 on Brick approved for advancement to standard the Tentative Specifications for Sand-Lime Building Brick and the Specifications for Paving Brick. The committee also recommended immediate revision of the Standard Specifications for Building Brick (Made from Clay or Shale) and the Tentative Methods of Testing Brick.

Freezing and thawing tests (weathering tests) are described in a paper by L. A. Palmer and J. V. Hall in a paper entitled "Some Results of Freezing-and-Thawing Tests Made with Clay Face Brick."

Committee C-8 on Refractories has approved a number of

recommendations of the Section on Temperature involving changes in the standard P.C.E. Test. The test formerly limited to the testing of fire-clay brick is now approved for raw fire-clay and silica cement as well. Detailed changes were also approved in the sampling of the test materials and the manner of preparing the test cones to make the test applicable to raw fire-clay and silica cement.

The committee approved last year the recommendations of the Section on Heat Transmission regarding a standard nomenclature which is the same as that of the National Research Council. This section now is studying methods of measuring heat transmission with the idea in mind of eventually making recommendations for a standard method.

In an attempt to put refractory tests and methods of reporting data on a sound statistical basis, the committee prepared a Manual for Interpretation of Refractory Test Data. The manual has been written to meet the immediate needs of refractory engineers and other technologists in this field, with the understanding that from time to time it would be revised to keep pace with advances in theory and practice.

The committee now has in progress with the Bureau of Standards the preparation of standard samples of chrome, magnesite and silica materials of the usual commercial grade. Twelve industrial and private laboratories are cooperating on the subject.

Several years ago the committee abandoned its test for the resistance to slagging of refractories because of the unsatisfactory data which was sometimes developed, and pointed out the necessity for some fundamental studies of the reaction between various slags and refractories before a new test could be recommended. Members of Committee C-8 are cooperating with the A.S.M.E. Special Boiler Furnace Refractories Committee which has had under way for several years a very thorough study both in the field and laboratory of the action of coal-ash slags on various fire-clay brick. The work has progressed to the point where it is felt that in the near future the A.S.M.E. committee can recommend a standard test procedure for at least the field of coal-ash slags and fire-clay refractories to Committee C-8.

In view of the growing interest in petrographic methods as applied to the examination and testing of refractories, especially in determining slag resistance, the committee has approved the formation of a Subcommittee on Microstructure.

Concrete and Concrete Aggregates

Committee C-9 on Concrete and Concrete Aggregates has under consideration approximately 100 independent projects, the work of which is divided among 60 members, grouped into 15 technical and 3 administrative subcommittees. Progress reports on many of the projects appear in the current report of the committee.

Specifications and methods of test of aggregates have received a large share of the committee's attention. The Tentative Specifications for Concrete Aggregates have been revised and a new Laboratory Method of Making Flexure Tests of Concrete Using a Simple Beam with Center Loading was developed.

The Subcommittee on Unification of Specifications is assembling a general specification for concrete, intended to include only the frame work necessary to write the specifications for materials and methods which have been, or will be, prepared by Committee C-9.

The Subcommittee on Design of Concrete has paid particular attention to a method for design of concrete based on flexural strength. Information has been collected on the effects on flexural strength of such factors as moisture content, richness of mix, age of concrete and surface of aggregate.

The Subcommittee on Extraneous Substances in Concrete is paying particular attention to the development of information on the effects of substances contributing to lack of durability of concrete. Information has been collected thus far on effect of coal and lignite, flat and elongated particles and oil-bearing aggregates.

Special attention has been paid to the development of methods for determining the constituents of fresh concrete by the Subcommittee on Materials, Mixing and Placing Concrete. Methods proposed by various investigators have been studied and reviewed and a report describing the various methods is expected to be available within the year. A method for analyzing hardened concrete is also under consideration.

Committee C-9 has given consideration to the problems connected with the production and transportation of ready-mixed concrete and has organized a new subcommittee to study these problems.

The Subcommittee on Workability of Concrete has made a number of studies of various methods of determining the workability of concrete. These important studies are being continued.

W. F. Purrington and H. C. Loring have continued their investigations on workability by measuring the power consumed in mixing, and a report of their studies appear in a paper entitled "Further Studies on the Workability of Concrete."

Committee C-9 is giving careful consideration to means of preventing overlapping and duplicating efforts of various organizations interested in concrete and concrete aggregates. Steps are being taken in an endeavor to arrange for a better correlation of the activities of the several committees interested in the same field.

Committee C-4 on Clay and Concrete Pipe has prepared new Tentative Specifications for Reinforced-Concrete Pipe. In connection with the preparation of these specifications the committee undertook a field survey and study of existing reinforced-concrete pipe structures, involving an examination of some 191 structures, 24 to 108 in. in diameter, for the purpose of securing data of performance under service conditions as a check and guide in specification preparation.

The committee also approved as tentative, Specifications for Reinforced-Concrete Culvert Pipe. These specifications, in substance, are those prepared by the Joint Concrete Culvert Pipe Committee and submitted by the Joint Committee to the Society in 1928. The committee also recommended the withdrawal of the Tentative Specifications for Required Safe Crushing Strength of Sewer Pipe to Carry Loads from Ditch Filling.

A revision of the Standard Specifications for Clay Sewer Pipe and for Cement-Concrete Sewer Pipe, the purpose of which will be to strengthen and broaden the specifications to make them more definite on several points, and also to conform more closely to the present needs and advancing methods of pipe manufacture is under consideration.

Road Materials

Committee D-4 on Road and Paving Materials approved for advancement to standard a number of specifications covering tar cement suitable for both hot and cold application in road work. The committee also revised the Tentative Specifications for Calcium Chloride for Dust Prevention and recommended a revision for immediate adoption in the Standard Method of Test for Loss on Heating of Oil and Asphaltic Compounds.

A section of Committee D-4 has carried on studies of various methods for the separation of cut-back asphalt to determine the amount and character of the base and cutback. While not at the present time ready to recommend a definite method, the committee reported results of tests using an atmospheric distillation method and a procedure involving both atmospheric distillation and distillation in a vacuum.

Paints, Petroleum Products and Naval Stores

Committee D-1 on Preservative Coatings for Structural Materials reports progress along many lines of activity. During the year, five new specifications have been prepared, including Specifications for Glazier's Putty and four specifications for solvents and diluents, namely, Amyl Acetate,

Amyl Alcohol, Butyl Propionate (90 to 93 per cent Grade) and Ethyl Lactate. The committee has also revised the Methods of Sampling and Testing Lacquer Solvents and Diluents and the Specifications for Soluble Nitrocellulose together with several other solvent specifications.

Of outstanding importance in the work of Committee D-1 is the cooperative work on the determination of hiding power of paints and pigments and the tinting strength of pigments, a progress report of which appears in the current report. In this connection, several papers dealing with hiding power were presented before the annual meeting, namely, "Hiding Power Measurements in Theory and Application" by A. H. Pfund, "A Discussion of Hiding Power and Its Measurement" by G. F. A. Stutz, Jr., and G. S. Haslam, "A Practical Brush-Out Test for Hiding Power of Paints" by H. A. Gardner, G. G. Sward and Stanley Levy and "Hiding Power and Tinting Strength of Pigments," by R. L. Hallett. Also of interest is the paper by E. D. Ries and C. B. Gilbert entitled "Gloss and Its Quantitative Measurement."

Committee D-2 on Petroleum Products and Lubricants has extended the scope of its activities by the formation of technical committees, whose principal duties shall be to study the relation between test data and service performance of materials and to prepare and recommend material specifications. Three technical committees have been organized, namely, Technical Committee A on Gasoline, Technical Committee B on Motor Oils and Technical Committee C on Fuel Oils.

The subcommittees of Committee D-2 have been very active in reviewing the present methods of testing and have recommended a number of revisions in the Methods of Test for Natural Gas Gasoline, Mineral Seal Oil, Kerosine Oils, Viscosity Tests, Distillation Tests, Tests for Water and the Methods of Sampling Petroleum and Petroleum Products.

Of outstanding importance are the two new methods developed by Committee D-2, the first a Method of Test for Dilution of Crankcase Oil prepared for determining the amount of dilution in crankcase oil of engines when gasoline has been used as the fuel. This test method is the result of an extensive investigation of several different methods including a vapor-temperature method and a steam-distillation method for determining dilution. The second is a Method of Test for Vapor Pressure of Natural Gasoline prepared by the Subcommittee on Natural Gas Gasoline.

Active studies are in progress on pressure-flow relationship of greases at various temperatures, on high-temperature oxidation tests and a flash-point method for cut-back asphalt and similar products. An attempt is also being made to determine the relationship between viscosity of transmission lubricants under pressure and gear shifting in cold weather.

A discussion of the volatility characteristics desired of gasoline for the best engine performance was presented in a paper by G. G. Brown entitled "Motor Performance as Determined by Fuel Volatility."

Committee D-17 on Naval Stores recommended the advancement to standard of the Tentative Method of Test for the Determination of Toluol Insoluble Matter in Rosin. This committee has been engaged, during the past year, in formulating methods for the examination of rosin to determine its suitability for each of its numerous uses and has prepared a draft of these methods.

The committee has extended the scope of its work by organizing Subcommittees on Viscosity of Rosin, on Size-Making Value and Alum Test, on Crystallization, on Acid and Saponification Number and Unsaponifiable Matter and on Darkening and Volatile Upon Heating. The preliminary work of these subcommittees will be confined to the preparation of a detailed statement of the value of the several properties to be investigated, and subsequently to study methods for the satisfactory determination thereof.

The committee sponsored a Symposium on Rosin at the annual meeting dealing with the various industrial uses of rosin and the requirements of the several industries as to

properties and qualities of rosin. This Symposium described the uses of rosin in paints and varnishes, in rosin esters, as a linoleum component, in rubber and reclaimed rubber, in cable impregnating compounds, in insecticides and disinfectants and in rosin oil and core oil, and showed in many instances that because of its peculiar properties it could not satisfactorily be replaced by any other material.

Shipping Containers, Timber and Fire Tests

Due to the many changes and improvements in loading and transportation conditions which affect shipping container standards, Committee D-10 on Shipping Containers recently reorganized its subcommittee structure to include other types of containers than those considered in the past, such as corrugated and solid fiber containers, nailed and lock-corner and wirebound containers, tie and slack barrels, wooden crates, plywood boxes, metal containers, paper containers and fabric containers. Consideration will also be given to metal reinforcements used on the various types of containers.

Committee D-7 on Timber has approved the revision of the Standard Specifications for Structural Wood Joist and Planks, Beams and Stringers, and Posts and Timbers. These specifications were prepared jointly by the American Railway Engineering Association and the A.S.T.M., and the revisions approved were made for the purpose of making them clearer and more complete. The strength of clear wood has been added as a factor of strength and green wood is used as the basis of working stresses. The committee also approved the new Tentative Specifications for Timber Piles as a revision of the Standard Specifications for Southern Yellow-Pine Piles and Poles to be Creosoted. The requirements of the new specifications are in accordance with those of the American Railway Engineering Association.

The Subcommittee on Timber Preservatives has worked very closely in cooperation with committees of the American Wood Preservers' Association and the A.R.E.A., and as a result, has approved revisions in the Standard Method of Test for Coke Residue of Creosote Oil, the Test for Distillation of Creosote Oil and the Methods of Sampling and Analysis of Creosote Oil. A Test for Specific Gravity of Creosote Fractions was issued as tentative to be added ultimately to the Methods of Analysis of Creosote Oil.

The committee has made rather satisfactory progress in the study of methods and apparatus for determining moisture content of timber. Proposed Methods of Test for Determining the Moisture in Timber for Use in the Laboratory have been prepared and a rapid moisture indicating apparatus for field use is under development.

The Subcommittee on Fireproofing is working on various methods for making timber fire-resistant. The importance of this subject is realized and one of the chief developments at the present time is the consideration of methods for testing fire-resistant timber. The committee is cooperating in this work with Committee C-5.

Committee C-5 on Fire Tests of Materials and Construction is developing methods for fire tests of untreated and chemically-treated wood. The committee presents, in the current report, for publication as information, a Proposed Method of Test for Fire-Retardant Treated Wood. In connection with the committee's study of the general subject, a new form of testing apparatus has been developed at the Forest Products Laboratory at Madison, Wis., and during the past year several of these have been placed in the hands of experimenters and testing bodies who have had past experience with other methods having similar purpose. The committee expects shortly to have opportunity to review and digest the data which is being developed with the apparatus. The committee is also reviewing and giving consideration to methods which have been in commercial use in the past, with a view to reaching conclusions on the extent to which the recently-developed equipment may practicably supplant, or should be recommended for use in connection with, equipment and methods which have been in vogue heretofore.

Coal and Coke

The Subcommittee on Methods of Testing, of Committee D-5 on Coal and Coke, conducted an investigation of a commercial form of the micropyrometer apparatus for the determination of the fusibility of coal ash. In general it was found that the micropyrometer results showed considerable variation from the standard gas-furnace results.

The Subcommittee on Coke Sampling prepared a proposed method of sampling coke which was published as information with the annual report of the committee. This method follows in general the Standard Method of Sampling Coal. The main deviation is in the reduction in the weight of the gross sample, as coke is generally made from mixed pulverized coal or coals and therefore is a fairly uniform product.

Bituminous Waterproofing and Roofing Materials

Committee D-8 on Bituminous Waterproofing and Roofing Materials has prepared proposed definitions of the terms "waterproofing" and "damp-proofing," which have been referred to Committee E-8 on Nomenclature and Definitions for consideration.

A new Subcommittee on Accelerated Weathering Tests has been formed and it is hoped that its investigations will prove of great interest and value. It is hoped that some form of a preliminary report will be possible within the coming year. A new Subcommittee on Bituminous Emulsions has been organized.

Insulating Materials

Committee D-9 on Electrical Insulating Materials has spent most of its effort in preparing methods of test. Subcommittee I on Insulating Varnishes has revised the Tentative Method of Testing Insulating Varnishes to include a description of the MacMichael viscosimeter. A section of this subcommittee is also studying methods of measuring hardness, dielectric strength, and insulation resistance of varnish films.

Subcommittee II on Molded Insulating Materials has in hand several problems dealing with molding powders, the methods of preparation of test specimens, and measurements of the completed specimens.

Subcommittee III on Sheet Insulating Materials has given considerable attention to the standardization of methods for testing paper. Laminated sheet materials have also been extensively studied by this subcommittee, and at the present time work is being taken up on varnished cloth tubing. This subcommittee also prepared the Tentative Method of Test for Comparing Thermal Conductivities of Insulating Materials, issued during the year.

Subcommittee IV on Liquid Insulation has given most of its attention to methods of testing transformer oils. Methods of sampling oils have been definitely decided upon. Also extensive work has been done in an effort to find a method which will be suitable for determining the life of an oil in service.

Committee D-9 has decided to combine Subcommittee VII and Subcommittee VIII into one subcommittee dealing with electrical tests. Matters before this subcommittee deal with the measurement of power factor of insulating materials at frequencies above 10 megacycles, power factor at low frequencies, and resistivity of special materials, such as varnish films, laminated tubes, etc.

Rubber Products and Textile Materials

Committee D-11 on Rubber Products has a number of standardization projects before it, including an investigation of test methods for steam hose, specifications and test methods for power transmission belting, specifications for rubber gloves for electrical workers, the insulation of wire and cable and methods of physical and chemical testing of rubber and rubber products. This program of investigations and standardization has not yet been developed to the point where the committee is ready to report any definite recommendations.

Other subcommittees are giving consideration to performance tests of rubber products, including abrasion tests, life tests for rubber products, flexing tests and the development of specifications and methods of testing rubber products for absorbing vibration.

This committee was instrumental in securing three papers on rubber belting presented at the last annual meeting, as follows: "Stretch in Rubber Transmission Belting" by C. W. Staacke, "Service Tests on Rubber Belting" by E. G. Kimmich, and "Performance Characteristics of a 4-in. 4-ply Rubber Transmission Belt, Branded Condor" by J. E. Skane.

An additional paper dealing with flexing tests as applied to pneumatic tire carcass was also presented by H. A. Depew and H. C. Jones in a paper entitled "Laboratory Flexing as an Aid in Investigating the Pneumatic Tire Carcass."

Committee D-13 on Textile Materials has developed a new test procedure for the measurement of tear resistance in woven textile fabrics to be added, when adopted, to the present Standard General Methods of Testing Woven Textile Fabrics.

The character of the work and investigations being carried on by Committee D-13, at the present time, may be judged from the following activities of its subcommittees: the Yarn Subcommittee plans a complete survey of yarns coming under its jurisdiction and also a revision of tolerances and test methods of tensile strength and elongation; the Tire Fabrics Committee is planning to draw up specifications for enamelling ducks and leno breaker fabrics; the Committee on Hose and Belt Ducks is working on specifications for hose ducks and will subsequently consider belting ducks; the Narrow Fabrics Subcommittee is working on specifications for 0.007-in. electrical cotton tape; the Section on Rayon is very actively engaged in a study of revisions in the Tentative Specifications for Tolerances and Test Methods for Rayon. The Section on Humidity has been studying the matter of moisture regain in various types of textile materials and is also preparing a method of measuring relative humidity.

Slate and Building Stone

Committee D-16 on Slate has been very active, through its subcommittees, in investigating and accurately measuring the physical and chemical characteristics of slate. Studies of the water absorption of slate are still in progress, and because of the relation of the effects on drying on the strength and elasticity of slate the Subcommittee on Absorption is vigorously conducting research into this matter in five different laboratories in the United States.

The Subcommittee on Abrasive Hardness has perfected a machine for comparative tests of the wearing qualities of various materials. These tests are being checked by determining the actual wear in use on stairways of these materials.

The Subcommittee on Weathering Characteristics has carried out very interesting experiments on acid and alkali resistance of slates. These studies are being continued and, in addition, studies will be made to determine the amount and extent of changes undergone by slate in actual use when exposed to the weather. Appended to the current report of the committee is a paper by C. L. Lancaster and C. H. Behre entitled "Chemical Experiments on Acid and Alkali Resistance of Slates."

The Subcommittee on Standardization of Samples has studied the type and number of test specimens best suited for certain types and uses of slate and has prepared recommendations for structural (machined) slate and for roofing slate.

Committee D-18 on Natural Building Stones prepared three methods for conducting physical tests on natural building stone, namely, Methods of Compression Testing of Natural Building Stone, of Flexure Testing and Tests for Absorption and Apparent Specific Gravity. These three methods of test have been approved by Committee E-10 on Standards for publication as tentative.

The committee has also prepared some Proposed Definitions of Terms Relating to Natural Building Stone which appear in the current report of the committee as information.

The Subcommittee on Testing Procedure is considering the development of additional testing procedures for making tensile, shear and elasticity tests and freezing and thawing and other weathering tests of building stone.

A schedule of surface finishes and their description has been prepared by the Subcommittee on Surface Finishes following a preliminary discussion of this subject and has been submitted to the committee for consideration. It is hoped that this material can shortly be worked into final form for submission to the Society.

Methods of Testing

During the past year the work of Committee E-1 on Methods of Testing has seen considerable activity on the part of its technical committees and sections organized to consider specific types of test. Additional committees have been organized such as the Technical Committee on Thickness Measurement, a Section on Elastic Strength of Materials and one on Effect of Speed of Testing. The Committee on Impact Testing has been reorganized and an excellent start on the work before it has been made in the preparation of a résumé of progress in impact testing since the Symposium on Impact Testing held in 1922. The Section on Sub-Sieve Sizes, of the Technical Committee on Size and Shape, has been very active and has developed methods of procedure for particle size determination which appears in the current report as information. The Section on Bend Tests for Ductility has prepared a Proposed Method of Quantitative Bend Testing which is being brought to the attention of all the standing committees of the Society.

Of outstanding significance is the organization, during the year, of a Technical Committee on Presentation of Data. The committee has in mind presenting some of the fundamental physical concepts underlying the modern statistical theory of measurement and arranging for the presentation of a series of papers and discussions at its meeting. Since all physical measurements are statistical in nature the committee will give consideration to the application of statistical theory in the planning of research programs.

A number of refinements in the testing of materials and new testing equipment have been brought out during the year. An apparatus which permits of rapid and accurate measurement of thermal transmission of textile fabrics under conditions similar to actual service is described by Ephraim Freedman in a paper entitled "Thermal Transmission of Fabrics." This apparatus may also prove of value in determining thermal transmission of pipe coverings.

A new tool for the delicate measurement of stress in mechanical structures, not only under static but also under dynamic conditions is described by J. P. Shamberger in a paper entitled "A Magnetic Strain Gage."

A very complete set of investigations on wire for bridge structures is described in a paper by L. S. Moisseiff entitled "Investigation of Cold-Drawn Bridge Wire." The program of tests covered all practical questions in connection with the strength and behavior of cold-drawn wire during storing, erection and thereafter as part of the bridge structure under dead and live loads and climatic conditions.

Detroit Regional Meeting

The first Regional Meeting to have been sponsored by the Society was held in Detroit on March 19. Under the auspices of the Detroit District Committee, two technical sessions were arranged comprising a Symposium on Developments in Automotive Materials, which discussed new uses for raw material and greater economy in present methods of automobile manufacture. At the first session six technical papers were presented dealing with metals, and at the second session, six technical papers covering miscellaneous materials.

PROFESSIONAL CARDS

PROFESSIONAL CARDS will be accepted for inclusion on this page from Consulting Engineers, Metallurgists, Chemists, Testing Engineers and Testing Laboratories.



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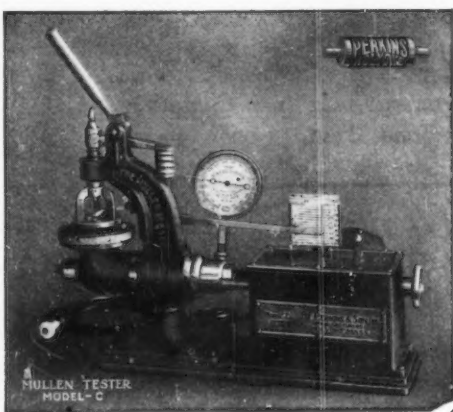
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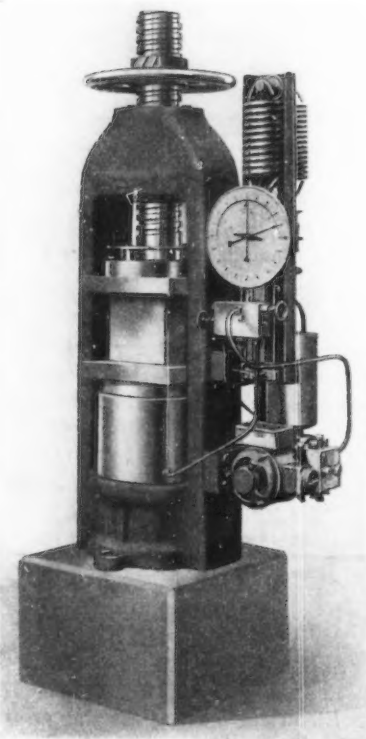
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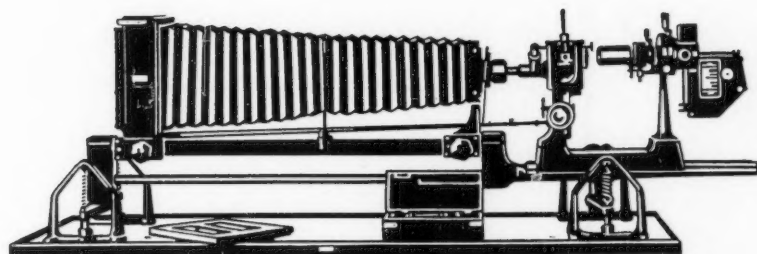
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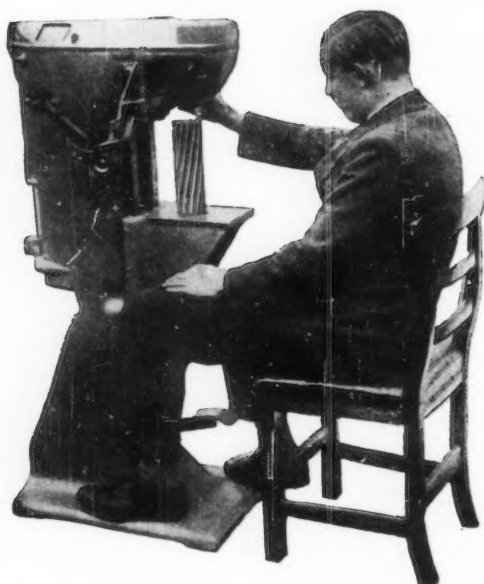
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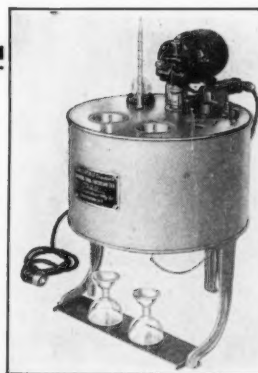
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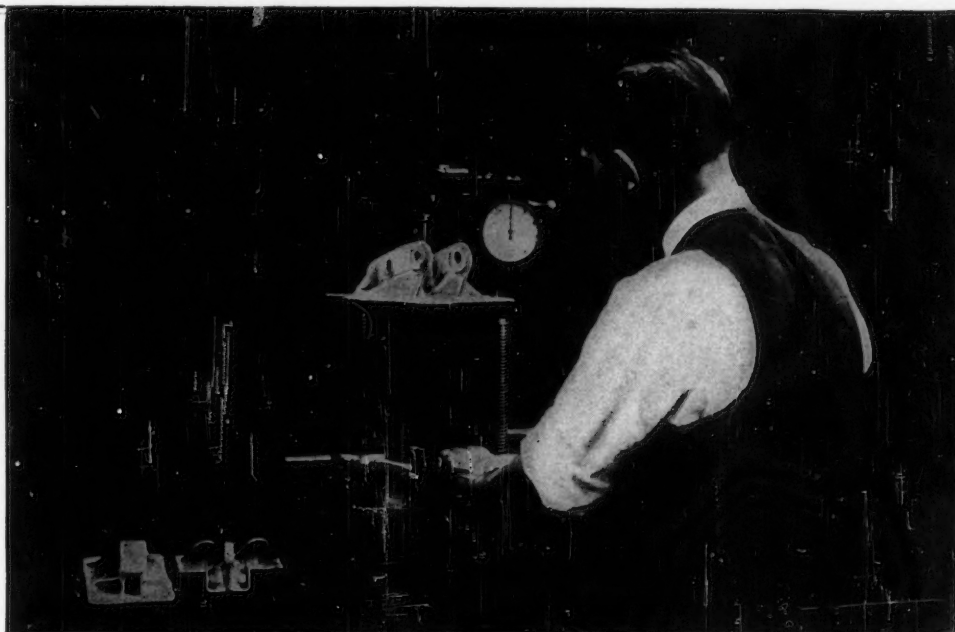
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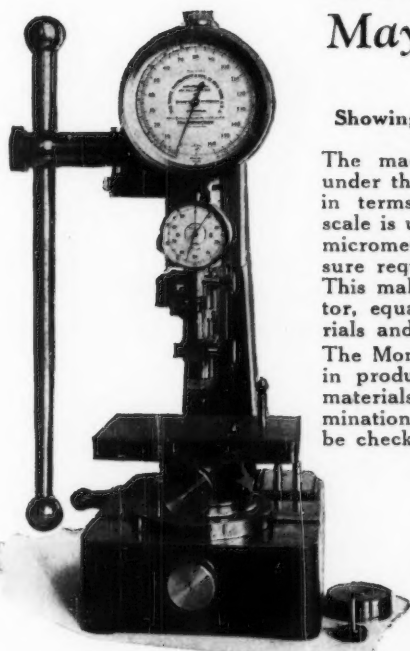
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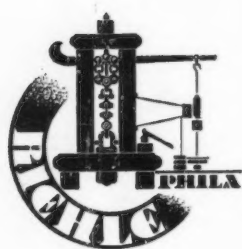
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Three Rotating Reversed Screw Type

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This machine embodies the improved features of Riehle design such as the three rotating reversed screw, automatic hydraulic reset, fully enclosed automobile type six-speed transmission and a full and one-fifth point so arranged that no parts are added to or removed from the weighing beam to change its range.

It can be operated to best advantage if it is located in a pit about 18 inches deep. The table top will then be about 2 feet above the floor. If, however, the machine is to be placed on an upper floor, or if it is not desired to cut such a pit, the machine can be operated with

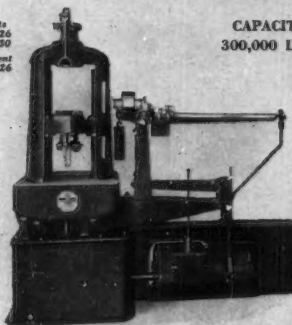


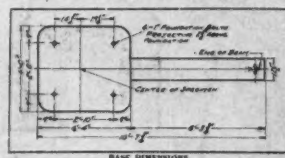
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equal satisfaction by building about the machine a platform 18 inches in height.

In either of the above types of installation the height of the beam and operating lever will be most convenient for the operation of the machine and the handling of specimens. Accuracy—This machine is accurate to plus or minus one-tenth division (10 pounds) up to 10,000 pounds capacity. Above 10,000 pounds capacity it is accurate to plus or minus one-tenth of 1 per cent.

Standard Equipment—1 set (1) large V-grips; 1 set (4) small V-grips; 1 set (4) flat grips; 3 sets (4 per set) grip liners; choice of 1 upper solid compression tool and 1 lower compression tool or 1 upper spherically seated compression tool; 1 upper and 1 lower transverse tool; 1 can Aluminex grease; 1 Aluminex gun; 1 can paint. A suitable constant speed A.C. motor only is supplied as standard equipment. If a D.C. or a special A.C. motor is desired, either will be furnished at additional cost.



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Extreme height 10 ft. 5 in.
Extreme length 10 ft. 7 1/2 in.
Extreme width 4 ft. 0 in.
Height of table above base 4 ft. 3 1/2 in.
Motion of pulling head 3 ft. 1 in.
Maximum distance between heads for tensile testing 2 ft. 1 in.
Distance between screws 17 1/2 in.
Transverse specimens 11 1/2 in. wide x 2 ft. 0 in. long

Tensile specimens
Round up to 3 1/2 in.
Square up to 4 in.
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Compression tools 11 in. diameter
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